KEY

Name: _____ TP: _____

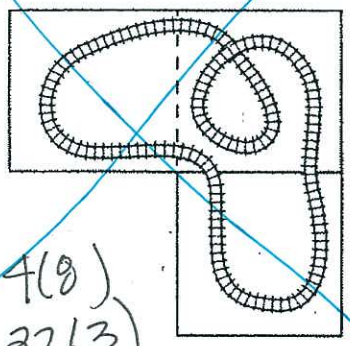
CW#20: Area of Circles
Geometry

CRS	MEA502: Compute the area and circumference of circles after identifying necessary information.
Objective	3.6: Find area of a circle.

Take out CW#19 in order for us to get more practice working with interior and exterior angles of a triangle. Your teacher will tell you what problems to finish on CW#19, if you finish those early, complete the additional quiz review problems below:

1)

Two 4-by-8-foot rectangular sheets of plywood overlap to form the base for a model train layout, as illustrated in the figure below. What is the area of this L-shaped region, in square feet?

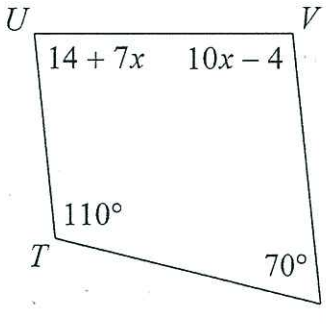


F. 16
G. 32
H. 48
J. 64
K. 96

4(8)
32(3)

2) Find the measure of the given angle:

$m\angle V$



$190 + 17x = 360$
$17x = 170$
$x = 10$
$m\angle V = 10(10) - 4$
$100 - 4$
$m\angle V = 96°$

3) The length of a rectangle is half the width. If the perim. is 24 m, what is the measure of the length & width?

A rectangle is 4 times as long as it is wide. The area of the rectangle is 196 square centimeters. What is the perimeter of the rectangle, in centimeters?

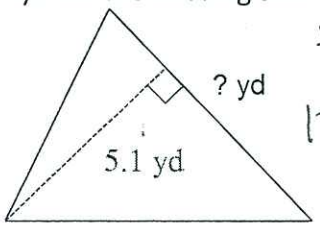
A. 35
B. 56
C. 70
D. 88
E. 149

W | ½W | W
½W

$L = \frac{1}{2}W$
$W = W$

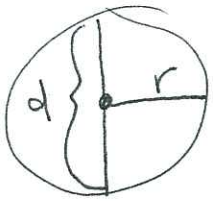
$2(W) + 2(\frac{1}{2}W) = 24$
$3W = 24$
$W = 8$ m
$L = 4$ m

4) Find the missing side: (Round tenth)



Area = 17.1 yd²

$A = \frac{1}{2}BH$
$17.1 = \frac{1}{2}(x)(5.1)$
$17.1 = 2.55x$
$x = 6.7$ yd

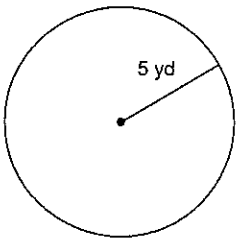
NEW STUFF!	Picture:	Formula:
Circle with radius "r" and diameter "d" $\tau = 3.14$ * Have them use the π button!! *		**Area:** πr^2

PUSH IT TO THE LIMIT.

* Have them write answer BOTH ways:

Area of a Circle EX: 1) 5π & 2) 15.7

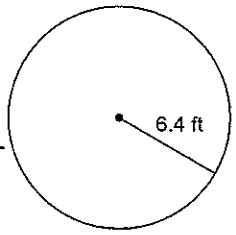
Example 1: Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$\pi(5)^2 = 25\pi \text{ yd}^2$

78.5 yd

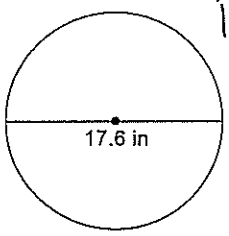
1) Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$\pi(6.4)^2 = 40.96\pi \text{ ft}^2$

128.7 ft^2

Example 2: Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



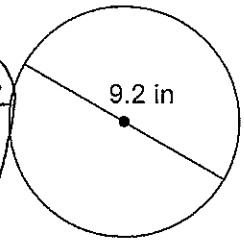
$D = 17.6 \text{ in.}$

$R = \frac{17.6}{2} = 8.8$

$A = \pi(8.8)^2 = 77.4\pi \text{ in}^2$

243.3 in^2

2) Finding the area of the circle. Use your calculator's value of pi. Round your answer to the nearest tenth.



$D = 9.2 \text{ in}$

$R = \frac{9.2}{2} = 4.6 \text{ in.}$

$A = \pi(4.6)^2$

$= 21.16\pi \text{ in.}^2$

66.5 in.^2

Example 3: If the area of a circle is 36π km^2, what is the radius and diameter?

$A = 36\pi$

$A = \pi r^2$

$\frac{36\pi}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{36} = \sqrt{r^2}$

$6 = r$

$R = 6 \text{ km}$

$D = 6(2) = 12 \text{ km}$

3) How many centimeters long is the radius and diameter of a circle whose area is 81π cm^2?

$A = \pi r^2$

$\frac{81\pi}{\pi} = \frac{\pi r^2}{\pi}$

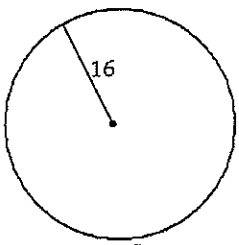
$\sqrt{81} = \sqrt{r^2}$

$9 = r$

$r = 9 \text{ cm}$

$d = 9(2) = 18 \text{ cm}$

4) The area of the circle is...



$\pi(16)^2 = 256\pi$

A. 16π

B. 32π

C. 256π

D. 1024π

5) Which expression below gives the area of a circle?

A. $2\pi r$

B. $\frac{1}{2}\pi r$

C. πr^2

D. πd

PUSH IT TO THE LIMIT.

6) How many centimeters long is the radius and diameter of a circle whose area is 121π cm^2?

$A = \pi r^2$

$121\pi = \pi r^2$ $\quad r = 11$

$\sqrt{121} = \sqrt{r^2}$

Radius: 11 cm

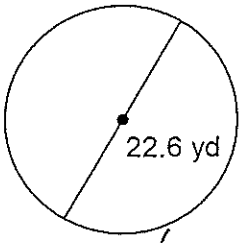
Diameter: 22 cm

7) How many centimeters long is the radius and diameter of a circle whose area is $144\ \pi$ cm^2?

Radius: 12 cm

Diameter: 24 cm

8) Find the area:



$22.6/2 = 11.3$

$\pi(11.3)^2 = 128.69\pi$ yd^2

401.1 yd^2

9) **Challenge.** a) You lay 10 inch long bricks end-to-end around the border of a circular garden. How many bricks do you need for each garden if it has a diameter of 26 feet?

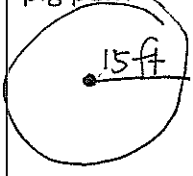
b) The bricks are sold in bundles of 100. How many bundles should you buy?

The area is...

$\pi(5)^2 = 78.54(1/2) = 39.27$

A.

10) You are filling a circular pig pen with dirt. The pen has a radius of 15 feet. The dirt costs $15.00 per square foot. How much money will it cost to fill the pig pen?



$\pi(15)^2 = 706.9$ ft.^{2}

$(\$15)$

$\$10{,}603.50$

11) What is the diameter of a circle that has an area of 256π square units?

$A = \pi r^2$ $\quad D = \frac{16}{2}$

$256\pi = \pi r^2$ $\quad D = 8$ units

$\sqrt{256} = \sqrt{r^2}$

$16 = r$

ACT Style!

12) A circle has an area of 30 square inches. If you double the radius, what will its new area be?

A. 60 sq in

B. 120 sq in

C. 450 sq in

D. 900 sq in

$A = \pi r^2$

$30 = \pi r^2$

$\frac{30}{\pi} = \frac{\pi r^2}{\pi}$

$\sqrt{9.5} = \sqrt{r^2}$

$3.1 = r$

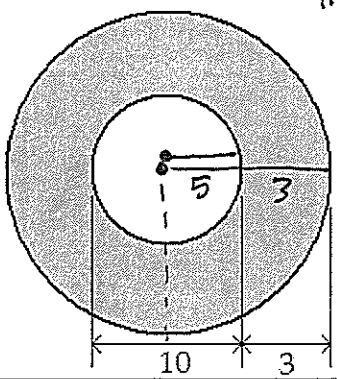
$3.1(2) = 6.2$

$\pi(6.2)^2 = 120.8$

13) Find the area of the shaded ring below.

$\pi(8)^2 = 201.06$

$\pi(5)^2 = 78.5$



A. 122.52

B. 201.06

C. 216.77

D. 452.39

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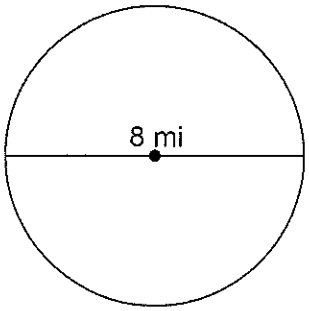
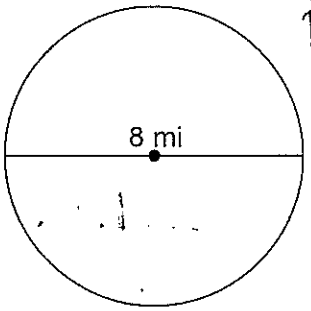
Exit Slip (Project).

1) Find the area:	2) The area of a circle is 49π square units. What is the ~~diameter~~, in units, of the circle?
	radius

Exit Slip w/answers.

1) Find the area:	2) The area of a circle is 49π square units. What is the ~~diameter~~, in units, of the circle?
 D=8 R=4 $\pi(4)^2 = 16\pi \text{ mi}^2 = 50.3 \text{ mi}^2$	radius $A = \pi r^2$ $49\pi = \pi r^2$ $\frac{49\pi}{\pi} = \frac{\pi r^2}{\pi}$ $\sqrt{49} = \sqrt{r^2}$ $7 = r$ UNITS

PUSH IT TO THE LIMIT.